



1626

**PATENT**  
Attorney Docket No. 213673  
DHHS Reference No. E-031-1998/0-US-04

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Beaucage et al.

Group Art Unit: 1626

Application No. 09/937,292

Examiner: T. Solola

Filed: January 25, 2004

For: N-ACYLPHOSPHORAMIDITES AND  
THEIR USE IN OLIGONUCLEOTIDE  
SYNTHESIS

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Pursuant to 37 CFR 1.97 and 1.98, the references listed on the enclosed Form PTO-1449 and/or Substitute Form PTO-1449 ("Form 1449") are submitted for consideration by the Examiner in the examination of the above-identified patent application.

The full consideration of the references in their entirety by the Examiner is respectfully requested and encouraged. Also, it is respectfully requested that the references be entered into the record of the present application and that the Examiner place his or her initials in the appropriate area on the enclosed Form 1449, thereby indicating the Examiner's consideration of each of the references.

The submission of the references listed on the Form 1449 is for the purpose of providing a complete record and is not a concession that the references listed thereon are prior art to the invention claimed in the patent application. The right is expressly reserved to establish an invention date earlier than the above-identified filing date in order to remove any reference submitted herewith as prior art should it be deemed appropriate to do so.

Further, the submission of the references is not to be taken as a concession that any reference represents art that is relevant or analogous to the claimed invention. Accordingly, the right to argue that any reference is not properly within the scope of prior art relevant to an examination of the claims in the above-identified application is also expressly reserved.

The Information Disclosure Statement is being filed:

- ☐ **within** any one of the following time periods: (a) within three months of the filing date of a national application other than a continued prosecution application under 37 CFR 1.53(d); (b) within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 of an international application; (c) before the mailing date

of a first Office Action on the merits; or (d) before the mailing of a first Office Action after the filing of a request for continued examination under 37 CFR 1.114.

- ☒ **after** (a), (b), (c) or (d) above, but before the mailing date of a final action under 37 CFR 1.113, a Notice of Allowance under 37 CFR 1.311, or an action that otherwise closes prosecution in the application, and includes *one* of:

☐ the Statement under 37 CFR 1.97(e) (see "Statement under 37 CFR 1.97(e)" below).

or

☒ the fee of \$180 set forth in 37 CFR 1.17(p) (see "Fees" below).

- ☐ **after** the mailing date of a final action under 37 CFR 1.113 or a Notice of Allowance under 37 CFR 1.311, or an action that otherwise closes prosecution in the application, and on or before payment of the issue fee, and includes the Statement under 37 CFR 1.97(e) (see "Statement under 37 CFR 1.97(e)" below), and the fee of \$180 as set forth in 37 CFR 1.17(p) (see "Fees" below).

- ☐ **after** the mailing date of a Notice of Allowance under 37 CFR 1.311, and on or before payment of the issue fee, and **within** thirty days of receiving each item of information contained in the Information Disclosure Statement, and includes the Statement under 37 CFR 1.704(d) (see "Statement under 37 CFR 1.704(d)" below), and the fee of \$180 as set forth in 37 CFR 1.17(p) (see "Fees" below).

NOTE: This is for original applications except applications for a design patent, filed on or after May 29, 2000, wherein a paper containing only an Information Disclosure Statement in compliance with 37 CFR 1.97 and 1.98 is being filed.

### Copies of the References

- ☒ Copies of all of the references listed on the enclosed Form 1449 are enclosed herewith.

- ☐ This patent application was filed after June 30, 2003. Accordingly, copies of U.S. patents and patent applications that are listed on the accompanying Form 1449 are not enclosed herewith (see Official Gazette Notice of August 5, 2003). Copies of other references identified on the accompanying Form 1449 are enclosed herewith.

- ☒ Attached to each reference not in the English language is a concise explanation of the relevance pursuant to 37 CFR 1.98(a)(3). An English-language equivalent/patent, or an English-language abstract, or an English-language version of the search report or action by a foreign patent office in a counterpart foreign application indicating the degree of relevance found by the foreign office is being submitted in lieu of a concise explanation of the relevance pursuant to 37 CFR 1.98(a)(3).

- ☐ A copy of the foreign search report is enclosed herewith.

- ☐ The references listed on the enclosed Form 1449 were previously identified in the parent application(s) of the present application, and copies of the references were

furnished at that time. Accordingly, additional copies of the references are not submitted herewith, so as not to burden the file with duplicate copies of references. The Examiner is respectfully requested to carefully review the references in accordance with the requirements set out in the Manual of Patent Examining Procedure. In accordance with 37 CFR 1.98(d), the details of the parent application(s) relied upon for an earlier filing date under 35 USC 120 in which copies of the references were previously furnished are set out below:

U.S. APPLICATIONS		Status ( <i>check one</i> )		
U.S. APPLICATIONS	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
1.				
2.				
3.				

**Statement under 37 CFR 1.97(e)**

- ☐ The **undersigned** hereby states that each item of information contained in the Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign patent application not more than three months prior to the filing of the Information Disclosure Statement.
- ☐ The **undersigned** hereby states that no item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign patent application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the Information Disclosure Statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the Information Disclosure Statement.

**Statement under 37 CFR 1.704(d)**

- ☐ The **undersigned** hereby states that each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and that this communication was not received by any individual designated in 37 CFR 1.56(c) more than thirty days prior to the filing of the Information Disclosure Statement.

**Fees**

- ☐ No fee is owed by the applicant(s).
- ☒ The **IDS Fee of \$180** under 37 CFR 1.17(p) is enclosed herewith.

In re Appln. of Beaucage et al.  
Application No. 09/937,292

**Method of Payment of Fees**

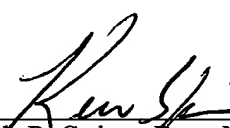
- ☐ Attached is a check in the amount of \$  
☒ Charge Deposit Account No. 12-1216 in the amount of \$180.00. (A duplicate copy of this communication is enclosed for that purpose.)

**Authorization to Charge Additional Fees**

- ☒ If any additional fees are owed in connection with this communication, please charge Deposit Account No. 12-1216. (A duplicate copy of this communication is enclosed for that purpose.)

**Instructions as to Overpayment**

- ☒ Credit Account No. 12-1216.  
☐ Refund

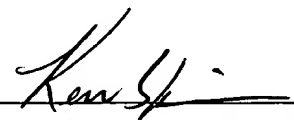
  
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Kenneth P. Spina, Reg. No. 43,927  
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Date: October 8, 2004

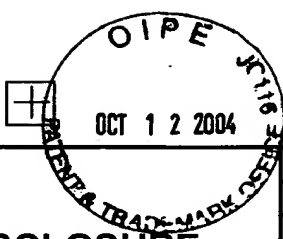
**CERTIFICATE OF MAILING**

I hereby certify that this INFORMATION DISCLOSURE STATEMENT (along with any documents referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: October 8, 2004

  
\_\_\_\_\_  
(Kenneth P. Spina)

Please type a plus sign (+) inside this box →



Substitute for form 1449A/B/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

### Complete if Known

Application Number	09/937,292
Filing Date	January 25, 2002
First Named Inventor	Beaucage
Group Art Unit	1626
Examiner Name	T. Solola
Attorney Docket Number	213673

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Of

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### U.S. PATENT DOCUMENTS

Examiner Initials	Doc. No.	U.S. Patent Document		Name of Patentee or Applicant	Date of Publication	Filing Date If Appropriate
		Application or Patent Number	Kind Code			
	DE	4,950,745		Ishido et al.	Aug. 21, 1990	
	DF	5,519,126		Hecht	May 21, 1996	
	DG	5,639,867		Brill	June 17, 1997	
	DH	5,652,358		Pfleiderer et al.	July 29, 1997	
	DI	5,670,489		Baxter et al.	Sep. 23, 1997	
	DJ	5,703,218		Urdea et al.	Dec. 30, 1997	
	DK	5,763,599		Pfleiderer et al.	June 9, 1998	
	DL	5,866,700		Pfleiderer et al.	Feb. 2, 1999	
	DM	5,889,165		Fodor et al.	Mar 30, 1999	
	DN	5,908,926		Pirung et al.	June 1, 1999	
	DO	6,001,982		Ravikumar et al.	Dec. 14, 1999	
	DP	6,022,963		McGall et al.	Feb. 8, 2000	
	DQ	6,043,060		Imanishi	Mar. 28, 2000	
	DR	US2001/0044529		Beaucage et al.	Nov. 22, 2001	

### OTHER - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Doc. No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number (s), publisher, city and/or country where published.	Translation	
			Yes	No**
	DS	Barone et al., <i>Nuc. Acids. Res.</i> , 12 (10) 4051-4061 (1984)		
	DT	Beaucage et al., <i>Annals of the N.Y. Acad. of Sciences</i> , 616, 483-485 (1990)		
	DU	Beaucage et al., <i>Tetrahedron</i> , 48 (12) 2223-2311 (1992)		
	DV	Beaucage, <i>Methods in Mol. Biol.</i> , 20: <u>Protocols for Oligonucleotides and Analogs, Synthesis and Properties</u> , 33-61, edited by Sudhir Agrawal, Totowa, N.J., Humana Press (1993)		
	DW	Beaucage et al., <i>Current Protocols in Nucleic Acid Chemistry Vol. 1</i> , 3.3.1-3.3.19, John Wiley & Sons, (2000)		
	DX	Bigg et al., <i>Synthesis: J. Synthetic Org. Chem.</i> , 277-278 (1992)		
	DY	Boal et al., <i>Nuc. Acids. Res.</i> , 24 (15), 3115-3117 (1996)		
	DZ	Finger et al., <i>J. Am. Chem. Soc.</i> , 2674-2675 (1959)		
	EA	Gray et al., <i>J. Am. Chem. Soc.</i> , 81, 4351-4355 (1959)		
	EB	Iyer et al., <i>J. Org. Chem.</i> , 55, 4693-4699 (1990)		
	EC	Iyer, <i>Current Protocols in Nucleic Acid Chemistry, Vol. 1</i> , 2.1.1-2.1.17, John Wiley & Sons, (2000)		
	ED	Lefebvre et al., <i>J. Med. Chem.</i> , 38, 3941-3950 (1995)		
	EE	Martin, <i>Helv. Chim. Acta</i> , 78, 486-504 (1995)	X+	
	EF	McBride et al., <i>J. Am. Chem. Soc.</i> , 108, 2040-2048 (1986)		
	EG	Mizrahi et al., <i>Chem. Abs.</i> , 83, 454, 193184h, (1975)		
	EH	Mizrahi et al., <i>Zh. Obs. Khim.</i> , 45 (3), 549-552 (March 1975)	X	
	EI	Murphy et al., <i>Tetrahedron</i> , 47 (24), 4077-4088 (1991)		

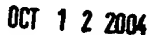
Examiner Signature

Date Considered

\* A concise statement of relevance is being submitted in lieu of a translation. 37 CFR 1.98(a)(3).

+ An English-language equivalent/patent, or an English-language abstract, or an English-language version of the search report or action by a foreign patent office in a counterpart foreign application indicating the degree of relevance found by the foreign office is being submitted in lieu of a concise explanation of relevance under 37 CFR 1.98(a)(3).

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**Complete if Known**

Application Number	09/937,292
Filing Date	January 25, 2002
First Named Inventor	Beaucage
Group Art Unit	1626
Examiner Name	T. Solola
Attorney Docket Number	213673

Sheet	2	of	2
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Date Considered

- \* A concise statement of relevance is being submitted in lieu of a translation. 37 CFR 1.98(a)(3).
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